

CLAIMS

What is claimed is:

1. A reference-initiated sequential read method that comprises:
forming a first attribute measurement associated with a stored data value
in a first memory element;
using the first memory element to determine a decision threshold;
comparing the first attribute measurement to the decision threshold to
determine said stored data value in the first memory element;
forming a subsequent attribute measurement associated with a stored
data value in a subsequent memory element; and
comparing the subsequent attribute measurement to the decision
threshold to determine the stored data value in the subsequent
memory element.
2. The method of claim 1, wherein said using the first memory element to
determine the decision threshold comprises:
writing a predetermined data value to the first memory element; and
measuring an attribute associated with the predetermined data value in the
first memory element.
3. The method of claim 2, wherein said using the first memory element to
determine the decision threshold further comprises:
writing a second predetermined data value to the first memory element;
and
measuring an attribute associated with the second predetermined data
value in the first memory element.
4. The method of claim 3, wherein said using the first memory element to
determine the decision threshold further comprises:
averaging attribute measurements associated with the first and second
predetermined data values in the first memory element.

5. The method of claim 2, further comprising:
forming a second attribute measurement associated with a stored data value in a second memory element; and
using the second memory element in conjunction with the first memory element to determine the decision threshold.
6. The method of claim 5, wherein said using the second memory element to determine the decision threshold comprises:
writing a second predetermined data value to the second memory element; and
measuring an attribute associated with the second predetermined data value in the second memory element.
7. The method of claim 1, further comprising:
after determining the decision threshold, forming a sequence of attribute measurements associated with a corresponding sequence of memory elements; and
comparing the attribute measurements to the decision threshold to determine stored data values in the sequence of memory elements.
8. The method of claim 7, wherein the first memory element and the sequence of memory elements are adjacent and aligned along a column or row in a memory array.
9. A memory that comprises:
a plurality of adjacent memory elements; and
sense amplifier coupled to the plurality of memory elements,
wherein the sense amplifier is configured to sequentially determine data values stored in the plurality of adjacent memory elements after using a first memory element to determine a decision threshold.

10. The memory of claim 9, wherein the decision threshold is used unchanged to determine the data values in each of the plurality of adjacent memory elements.
11. The memory of claim 9, wherein the plurality of adjacent memory elements are aligned along a column.
12. The memory of claim 9, wherein the sense amplifier is configured to re-determine a decision threshold as part of determining data in each of multiple different pluralities of adjacent memory elements.
13. The memory of claim 9, wherein the sense amplifier also uses a second memory element in the plurality of adjacent memory elements to determine the decision threshold.
14. The memory of claim 9, wherein the memory further comprises:
a read buffer coupled to the sense amplifier and configured to buffer a sector of read data.
15. The memory of claim 9, wherein the memory further comprises:
a error correction code (ECC) decoder coupled to the sense amplifier and configured to perform error correction on data values received from the sense amplifier.
16. The memory of claim 9, further comprising:
a write driver coupled to the first memory element and configured to store at least one predetermined value in the first memory element,
wherein the sense amplifier uses a measurement of an attribute associated with the predetermined value to determine the decision threshold.

17. A digital device that comprises:
 - a memory means for storing data sectors; and
 - a sensing means for sequentially retrieving data sectors from the data storage means,wherein as a part of retrieving each data sector the sensing means determines a decision threshold using a portion of the memory means that stores a first value in the data sector.
18. The digital device of claim 17, wherein the sensing means uses the decision threshold unchanged as the sensing means retrieves a data sector.
19. The digital device of claim 17, wherein the data sectors are stored along columns in the memory means.
20. The digital device of claim 17, further comprising:
 - a write means for storing at least one predetermined data value in said portion of the memory means.
21. A reference-initiated sequential read process that comprises:
 - forming a first attribute measurement associated with a known data value in a first reference memory element;
 - forming a second attribute measurement associated with a known data value in a second reference memory element;
 - combining the first and second attribute measurements to determine a decision threshold;
 - forming a subsequent attribute measurement associated with a stored data value in a subsequent memory element; and
 - comparing the subsequent attribute measurement to the decision threshold to determine the stored data value in the subsequent memory element.

22. The method of claim 21, wherein said combining attribute measurements comprises averaging the attribute measurements.